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SOME FISH-NOTES FROM GREAT YARMOUTH FOR 1908.

BY ARTHUR H. PATTERSON.

It was with regret that I had to report last year (Zool. 1907, p. 460) a want of help from the local shrimpers because of the difficulties they experienced in not only procuring a living, but in manipulating boats and nets owing to the unpropitious conditions of wind and weather. The present spring and summer were made as notoriously blank for me by reason of the remarkable ease with which these men captured large quantities of "Pink Shrimps," *i. e.* Ring-horned or *Æsop's* Prawns (*Pandalus annulicornis*), the "sheerness" (clearness) of the water, and the striking dearth of curious and even common species of fish and crustaceans.

The shrimping season began very early, the catchers having had a most trying winter, for their boats, owing to the enormously increased number of Herring-luggers fishing out of the port from September-end to nearly Christmas-time, have to be hauled out and laid by until the end of the Herring harvest. They were wont in the old more leisurely days, before "cranning" the Herrings came into vogue, to go to the fish-wharf to "tell" (count) Herrings, to go occasional trips on the luggers, or to wedge themselves for the slow season into other congenial, if unskilled, occupations. But "cranning" altered the pursuits of others besides themselves. Fortunately, from causes which I

have been unable to satisfactorily account for, but probably from a slightly higher temperature of the water, or, maybe, from tidal influences, the "Pink Shrimps," a much more desirable, because a more saleable, species than the Sand Shrimp, *Crangon vulgaris* (local, "Brown" Shrimp), were found in goodly quantity, and becoming so numerous, indeed, in May that on some tides but one haul was taken, and a quick run back made to port, sufficient having been obtained for the "orders" and for possible private sales without the necessity or probability of throwing away those for which there might be no demand because of an overplus, which would have resulted from succeeding hauls. "It fared a reg'lar pity," they told me, "to hev to hull away what they couldn't sell!" Under ordinary conditions several draughts have to be made between the falling of the tide and the return to the harbour on the latter part of the flood-tide.

In February the Prawns ran small, and a great many of them were heavy in berry. They were reported to me on the last day of October as still plentiful, one man assuring me that in a small boat rigged expressly for winter work to dodge in and out the harbour while his larger boat was laid up, he took, on the 30th, no less than three pecks.

On Jan. 23rd I discovered a Black Sea Bream (*Cantharus lineatus*), about fourteen inches long. From inquiries made I ascertained it had been captured, with others, in the neighbourhood of Cromer Knowle, as near as my informant could be sure. Up till that time I had never met with this species off the Norfolk coast. From the same neighbourhood, on Feb. 10th, I received a very beautiful and fresh example of the Miller's Topknot (*Zeu-gopterus punctatus*), measuring $6\frac{1}{2}$ in. in length.

The shrimpers fell in with a quantity of ten-inch Codlings on Feb. 10th. From the gills of one I obtained a fine parasite (*Lernæa branchialis*), which stuck most tenaciously to its support. On placing it in formalin it disgorged so much blood that it coloured the solution, itself turning from a blood-red to a pale flesh-colour. During February I saw several lots of Sprats large in ova.

I have not yet been able to satisfy myself that Smelts visit the Broad. Certain it is that great numbers go up the Yare to the neighbourhood of Norwich to spawn, and a great number frequent

the Bure, or North River, which connects itself with the Hickling group of broads; but, although some good hauls are netted at Runham (six miles up), and even higher, satisfactory evidence is not to hand that the fish actually go into these shallow lagoons. I know of one instance where a man at Potter Heigham trans-fixed a fine Smelt on an Eel-pick, but beyond this have no account of one taken as high as that. Potter Heigham is seventeen and a half miles by river from Yarmouth Bridge, and Norwich is twenty-six miles.

March 3rd. A ten-inch Brill (*Rhombus lævis*) turned up at a fish-stall to-day, with the upper surface of a porcelain-white with the exception of a splashing of the normal coloration round the eyes, and ten spots of the same hue, like finger-prints, placed around the edges of the fins in singular order, five on each edge. The fins and caudal appendage were, however, of the ordinary grey-brown colour.

A considerable number of Hake (*Merlucius vulgaris*) in the town on April 13th, and on the 14th several shops displayed an unusual number of Sail Flukes (*Rhombus megastoma*), several running to fifteen inches in length. These were from consignments landed in the south-west of England. I tried one of the Flukes, but found its flesh dry and insipid, more like that of an out-of-condition Whiting than a Sole, for which fish it is occasionally sold to the unwary.

On April 29th I saw a ten-inch Codling, taken on Breydon, with a very short upper lip, the lower one extending much beyond it. The fish, viewed from the front, had a curiously frog-like appearance.

May 1st. Some large North Sea Pollack (*Gadus pollachius*) brought in.

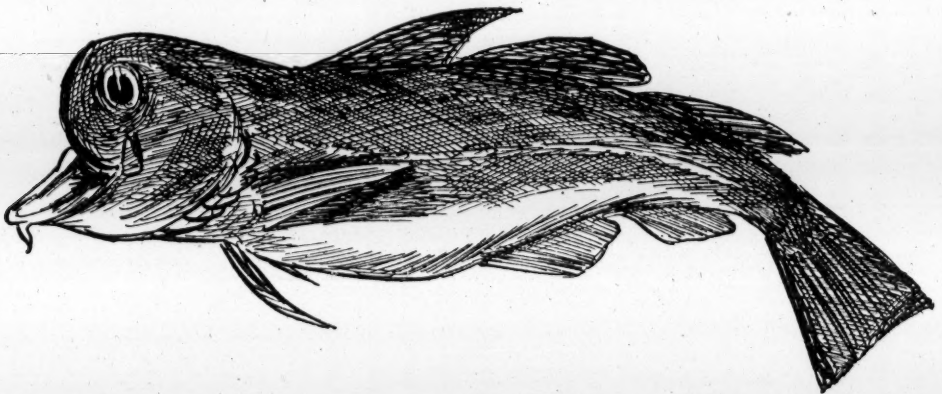
On the same date I observed some rich yellow sections of a round fish which looked uncommonly like filleted Haddocks, the colouring being much more ochreous, and the general appearance exceedingly appetising. The salesman, on my questioning him, at first professed ignorance as to its species, but with a little suggesting he at length admitted that he believed it to be crimped "Cat-fish," the local name for Wolf-fish (*Anarrhichas lupus*). "But they are selling well," he remarked with a smile, "and several stones of it had gone off during the week." He

admitted that the bright colour was due to anatto. I purchased a piece of it and cooked it like Haddock, finding the flesh fairly good eating, slightly "twanging" of a Skate-like flavour, and more salted than I cared for. Whilst examining these "Grimsby Haddocks" I noticed close by the heap a hybrid Plaice-Halibut, the second example of this cross which I have met with, that, finless and headless, weighed about $4\frac{1}{2}$ lb.

May 7th. A number of Coal-fish (*Gadus virens*) on sale.

On May 8th I had a sturdy little crustacean brought me from a shrimp-boat, which, on sending to the British Museum for identification, was reported to me as *Cirolana borealis*.

Another deformed Cod came to hand on May 14th. It weighed 1 lb. 10 oz., and was caught near the fish-wharf, in the river. The upper part of the head turned completely round



BULL-DOG COD-FISH.

from just in front of the eyes, the end of the upper lip coming in a half-circular sweep under the palate. The lower lip protruded, and had a remarkably spoon-like appearance (fig. *supra*).

I saw, on May 25th, a Sappharine Gurnard (*Trigla hirundo*), a foot in length, with a decided kink in body, much after the shape of the Smelt referred to on p. 445. On the same date I received a beautiful example of the Common Mackerel, whose deep blue back was entirely without the characteristic stripings. Length, 15 in. This is the third of the kind that has passed through my hands.

Had a very pretty salmon-coloured variety of the Common Sole on June 16th. Length, $9\frac{1}{2}$ in. It is now in the Norwich Museum.

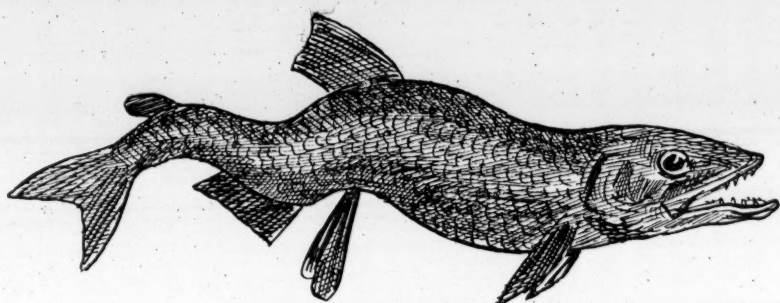
An example of the Sowerby's Hippolyte (*Hippolyte spinus*), the second only I have ever seen, was brought me by a shrimper on July 3rd.

I joined myself to a couple of rural sportsmen on July 11th, and with a "lambing-net" (a sort of bow-net held in position by a long pole fastened on to the cross-beam with a swivel) worked the ditches on a triangular area of marshes between the rivers Waveney and Yare. The drainage ditches had been recently "flushed" by an inlet of water from the river, they having become so low and stagnant from the long drought. Hoping that the "freshening" had been greatly to the enlivening of the Eels which frequent these ditches, we gave them not a little fright by "plouncing" the water, starting to "plounce" some twenty yards from the net at each "set," a process which drove the Eels towards the net as each twelve-foot pole, armed at the end by a lump of wood, stirred up the water and ooze into numerous dirty little whirlpools. The result of our fishing amounted to eighteen pounds of Eels, with the addition of a plump little Jack of some five pounds weight. We took very few Sticklebacks, on which both Jack and Eels feed; these little fellows must lead an exceedingly troublesome existence. The Eels, I feel assured, originally found their way into these ditches as elvers by working through the interstices of the sluice-gates, or when, as in the present instance, they are opened to replenish that lost by evaporation. I found that very few small Eels were obtained, the majority running from a quarter of a pound to one pound. They were of a remarkably ruddy golden hue, quite unlike salt-water Eels, and when cooked were far more oily and muddy-tasted than clean-run Eels.

During July a very crooked Smelt was taken on Breydon; the dorsal fin stood out high upon a hump, and the adipose fin behind on another, the tail being directed downwards at half a right angle, something after the fashion of a scull thrust astern of a boat (fig. on next page).

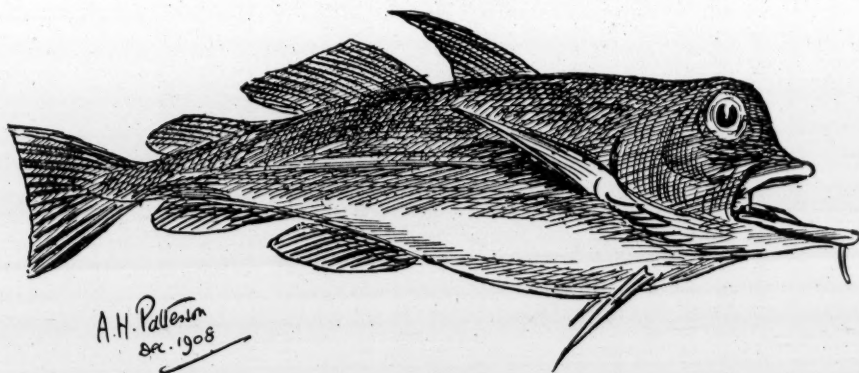
The Crucian Carp (*Cyprinus carassius*) is numerous in Fritton Lake, growing to a goodly size there, but it seldom takes a hook. It is stated by Dr. Lowe to be numerous in ponds in East Norfolk; the same writer recorded one weighing 1 lb. 7 oz. At a shallow horse-pond at Lound, on the Suffolk border, near the

Maid's Head, considerable numbers of this pretty golden-hued fish are found, rather undersized, and probably chronically hungry. I paid this place a visit on July 30th in order to secure one or two for a tank at home, and notwithstanding the freely offered advice of the village school children, who flocked



DEFORMED SMELT.

round in a crowd, I hooked a dozen Carp in a very short time. They ran to four inches and a little over in length, and took red-worms and gentles indiscriminately; they were lively enough in a small bait-can, although I had seven miles to cart them on a broiling hot afternoon, the hottest of the year. They were at home almost directly I turned them into my tank, and none have died up to the time of writing, although they get but little food,



BULL-DOG COD-FISH.

except the vegetation which grows on the sides and bottom of the tank. With them, in perfect amity, live a couple of small Roach. All of them have grown considerably since I have kept them.

Another bull-dog codling, Aug. 10th (fig. *supra*).

Some abnormally high tides occurred on the local rivers in the middle of August; in the Bure they did great damage to the fishes, and many Roach and Bream and small Pike succumbed.

A double Flounder* (*Pleuronectes flesus*), about $5\frac{1}{2}$ in. in length, was brought to me on Sept. 1st. Both sides were of a dusky brown colour, and the "travelling eye" remained at the edge of the fish in a notch, which gave it the advantage of seeing on either side, did it progress in a vertical position.

By reference to my notes in 'The Zoologist' of 1907, p. 463, it will be seen that, while Breydon and the adjacent waterways literally teemed with "herring-syle" during the month of August, Terns in unusual numbers came and remained with us for a considerable period. The water seemed alive with these young Herrings, and thousands were left stranded at each ebb-tide on the flats, entangled amongst the *Zostera*, to the huge delight of flocks of Black-headed Gulls, which eagerly snapped them up, making prodigious noise as they hovered and dropped and quarrelled for possession. From some unknown cause there was as remarkable an absence of "syle" during the unhappy summer of 1908, and all the Terns (including the Arctic, Common, and Little Tern) were also conspicuously absent—a matter of cause and effect apparent to the least intelligent. I might add that early in September these birds passed over Breydon in considerable numbers on migration. Strangely enough, the "syle" was abundant at Wells-next-the-Sea and in the neighbourhood of the Wash, where, I believe, the Terns remained unusually late. The presence of these luscious little fishes attracted enormous numbers of Mackerel into the neighbourhood of Wells, to the great temporary profit of the fishermen.

The Scad (*Trachurus trachurus*), or Horse-Mackerel, has been somewhat commonly met with during the course of the autumnal Herring fishery. No one troubles to eat the fish in this neighbourhood, and it is either cast overboard when the nets are "cleaned," or is thrown on the refuse-heap if found in the catch when in port.

A rather unexpected catch in the shape of a Salmon-Trout was made by an angler from the Britannia Pier on Oct. 28th. The fish, which took a lugworm as bait, weighed $3\frac{1}{2}$ lb. A smaller one was also taken on the same date.

Some time during the last week in October, when cleaning some Herrings, a labouring man discovered one of them to be

* Cf. 'Zoologist,' 1908, p. 353.

hermaphroditic, containing both roe and milt. Each lobe consisted of two-thirds roe, the remaining third being milt, which latter was situated at the posterior end of the abdominal cavity. This freak was kept for a week for my inspection, but got muddled away because its finder was too busy to look me up. I have twice before seen instances of this kind.

A rather unusual catch, for the time of the year, of Norwegian Lobsters (*Nephrops norvegicus*) was made early in November, a "trunk" of them being sent to Yarmouth. On overhauling a number spread in the window of a fishmonger's I discovered no fewer than five examples with distorted greater pincer-claws. This species seems more "addicted" to malformation than any other crustacean I have seen.

The Herring fishery, to the time of writing, has been up to the average, and the scene at the fish-wharf, on a brisk day, with the hundreds of steam drifters and numerous Continental cargo steamers lying along the quay for nearly a couple of miles, loading or discharging their silvery cargoes, the passing up and down the river of full or empty drifters, with smoking funnels, hooting syrens, and scale-clad, unwashed crews performing the tasks incidental to the present conditions aboard, make up a scene which absolutely beggars description; nor is the picture complete without noticing the hundreds of hurrying vehicles and busy carters, and the myriad tubs of "barrel-town" spread across the extensive Denes (sand-dunes), among which, like bees in a hive, labour thousands of Scotch fisher-girls gutting and pickling the Herrings.

Mackerel did not show up so numerously at Yarmouth during the earlier part of the fishing, but on Nov. 12th a remarkable glut occurred at Lowestoft, the Mackerel having been met with in immense shoals. At Lowestoft I hear that Mackerel were never before so plentiful, and several boat-owners hastened to change their Herring-nets for Mackerel-nets. One craft, the 'Nugget,' had a record catch; it was estimated that she landed just four "lasts," or nearly fifty thousand fish. So full of fish were the nets that not half could be stowed in the net-room, and the remainder, still "gilled," lay in the huge heap piled on the deck. "Cleaning" (emptying) the nets after a Herring haul is not a difficult task, the fishermen merely shaking the net of

the enmeshed Herrings as they proceed ; but almost every fish in a Mackerel-net has to be taken out by hand. But, aye ! what a bonnie sight is a cargo of freshly captured *Scomber*, glistening as they do with iridescent tints, to describe which the names from a colour-box are utterly insufficient to convey any idea. In some cases the Mackerel had "struck" so thickly that sections of net were "grounded," or sunk to the bottom.

A Scotch boat, having been out but a short time, put into Lowestoft on the evening of Nov. 12th with thirty crans of Herrings (nearly forty thousand fish), which had been transferred to her at sea from the Banff drifter 'Violet,' the latter having made a haul which she could not safely carry ; she had on board herself no fewer than two hundred crans (two hundred and sixty-six thousand six hundred Herrings !).

I have to record, as usual, the fact that no Cetaceans, to my knowledge, have been brought into port during the present Herring fishery. I understand that Porpoises and other "large fishes" have been seen on the fishing-grounds, and it is evident that some Porpoises at least have come to grief and been drowned in the Herring-nets, but as no value attaches to Cetaceans or Sharks nowadays, either for economic or curious purposes, they are invariably thrown back into the sea. At one time Sharks of any size were eagerly snapped up by showmen, but since the various markets in the county have been closed to promiscuous show-work, and sanitary officials have more sense (?) than sentiment, they, too, place stumbling-blocks in the way of exhibition : so that the pseudo-fisherman who erstwhile used to dilate upon these "terrors of the mighty deep," and the "pounds and pounds worth of damage done to the poor fishermen's nets, for whose benefit they were travelling," has become a creature of the past. Time was, some forty years ago, when Porpoises fetched as much as five shillings apiece for the sake of their skins, which were much used at that time for water-boots, and for the oil extracted from their fat. Our local tanneries are also entirely obsolete. Two Porpoises, in a forward state of decomposition, were washed ashore during the easterly winds prevailing during the first week in November. The Gulls seemed to have been very busy upon these carcasses before they had washed ashore.

NOTES ON HERONRIES.

BY REV. F. L. BLATHWAYT.

LINCOLNSHIRE.

IN the list of British Heronries, printed in 'The Zoologist,' 1872, nine Lincolnshire colonies are mentioned, of which four at that time were extinct, two of doubtful existence, and three still inhabited. The extinct heronries were formerly situated at Leake near Boston, Spalding, Donington, and Cressy Hall, all in the south-east of the county. In Thompson's 'History of Boston' (1856) it is stated that the Herons at Leake built in numbers for a long time in a large tree, which was literally covered with nests. It was cut down about the year 1830. Pennant evidently informed Gilbert White of the Cressy Hall heronry, as we see from two of the Selborne naturalist's letters written in 1769. This heronry appears to have been a very large one, as many as eighty nests being seen on one tree. Of the other heronries, one on Lord Yarborough's estate at Manby, near Brigg, was on the decline in 1851, and apparently extinct by 1872, owing to the felling of the trees, while a heronry formerly situated in Muckton Wood, near Louth, seemed in 1872 to be of doubtful existence. The only inhabited heronries at the time the list was published were:—One in Skellingthorpe Wood, four miles west of Lincoln; one at Swanpool (the "Swanpool," I presume, near the city boundary); and one at Haverholme, near Sleaford.

In the fourth edition of Yarrell's 'British Birds' vol. iv. (1884–1885) this list is brought up to date, and we find that these last three heronries were still in existence, that at Haverholme consisting of forty pairs of birds, while the Manby heronry, thought to be extinct in 1872, is stated to have been reduced from thirty nests to seven in 1884.

John Cordeaux, in his 'Birds of the Humber District,' 1872, merely repeats the list from 'The Zoologist' (which appeared a few months earlier in the 'Field'), and adds that a single nest was built on a tree in Nocton Park, near Lincoln; but in his "Revised List," 1899, he states that the species still nests "in

unimpaired numbers in old-established Lincolnshire heronries, also in a few fresh localities."

The above is all that I have learnt from published notes on Lincolnshire Heronries, so it may be of interest to give, as far as I can, the most recent information on the nesting of these birds in the county. During the early spring of this year (1908) I visited four existing heronries in the county, received news of a fifth, and visited also the site of the Swanpool heronry, which appears from 'Yarrell' to have existed in 1884. If I am right in identifying this "Swanpool" with the piece of water overhung with trees, known by that name, close to Lincoln, I can state that a heronry no longer exists there, but the one in Skellingthorpe Wood, less than three miles away, is still tenanted. During the last three years the birds have shifted their quarters in this large wood, and when I visited them on March 10th this year I counted about twelve nests, but fancy that only about seven pairs were breeding, sitting having evidently commenced.

On March 17th the heronry in Evedon Wood, Haverholme, was visited, where I found eighteen or twenty pairs of birds nesting. I am told by one who knows this colony well that the birds have not decreased much during the last twenty years.

Some birds from the Manby heronry, which, as mentioned above, was broken up by the felling of trees about 1870, appear to have shifted their quarters two or three miles to the north to Rowland Plantation, near Appleby Station. This year, on March 27th, rather more than twelve pairs of birds appeared to be breeding there, the nests being placed on the tops of high Scotch firs. Owing to the thickness of these firs I found it hard to count the occupied nests, but I saw at least sixteen birds, and others probably escaped observation.

A heronry also exists in Newball Wood, Langworth, about seven miles north-east of Lincoln. This colony is not mentioned in the above lists, so perhaps it is of somewhat recent origin. It has been known to me for about seven years, six or seven pairs of birds nesting there annually during that time. I have no knowledge of the date when the colony was established, but the number of birds seems to have lessened of late. One

observer has told me that not many years ago about fourteen pairs nested in the wood.

The site of the heronry in Muckton Wood, near Louth, according to the list in 'The Zoologist,' showed signs of re-occupation in 1872. Whether or not the birds returned to the wood, I cannot say, but a heronry exists in Tothill Wood, some three miles further east, which may well be an offshoot of the old colony. Mr. G. H. Caton Haigh has informed me that he noticed between twenty and thirty nests in the trees when he was shooting the wood last winter, but he has heard that an order has gone out that the birds are to be destroyed in the interests of trout-fishing.

It will be seen from the above that, so far as I know, the existing Lincolnshire Heronries, with approximate numbers of nesting birds, are as follows:—Skellingthorpe Wood (seven pairs); Evedon Wood, Haverholme (twenty pairs); Rowland Plantation, near Appleby Station (twelve pairs); Newball Wood (seven pairs); and Tothill Wood, near Louth (?twenty pairs). Possibly readers of this article may know of other colonies still existing within the county boundaries.

SOMERSET.

The following notes on five Somerset heronries may be of interest, as they probably give an approximate idea of the number and size of the colonies of these birds at present existing in the county. The most recent notes are the result of correspondence between myself and observers on the spot, so they should be quite reliable. Other colonies may exist in the county, though I think it somewhat unlikely there are any more important ones, as, when I was drawing up the account of "Birds" for the 'Victoria History of Somerset,' my correspondence with naturalists in various parts of the county brought no news of other heronries.

1. *Dulverton*.—This heronry consists at the present time of about seven or eight pairs, and is situated in Ellar's Wood. For a great many years a colony has existed in the neighbourhood, and the birds have repeatedly shifted their quarters. Last April I received the following interesting letter on the history of this colony from the aged Dr. J. B. Collyns, of Dulverton:—"A few Herons still remain in Ellar's Wood, a short mile from Dulver-

ton, in Somerset. Within the last few years they shifted their quarters from the higher western corner to further down in the cover consequent on some of their nesting-trees being blown down. I first remember the heronry in Steart Wood, contiguous to Pixton Park, where, in the thirties, the young ones were annually shot in mid-June by Lord Carnarvon's friends, and singly distributed. They were very good, skinned, stuffed, and roasted like hare. As a boy I remember the strawberries and cream which were enjoyed upon these occasions. Prior to their Steart holding I am reliably told the heronry existed in Shelve-acre Wood, a little below Combe, the Elizabethan residence of the Sydenham family, whence in 1790 they shifted to Steart after St. Barbe Sydenham had some of the trees cut down."

2. *Halswell* (near Bridgwater).—A heronry is said to have been started here about the year 1871, and consisted of forty or fifty pairs of birds in 1883 (*cf.* Zool. 1883, p. 222). In 1901 from twenty to thirty pairs still bred there, and the colony probably still exists.

3. *Brockley Park* (ten miles south-west of Bristol).—A heronry has existed here for thirty-six years at least, probably for a much longer time. This year there were about ten pairs of birds occupying the site.

4. *Knowle* (near Dunster).—This heronry appears to date from about the year 1857, and in 1872 consisted of about thirty nests built on larch-trees (*cf.* Zool. 1872, p. 3265). D'Urban and Mathew, in their 'Birds of Devon' (ed. 2, 1895), treating, on p. 185, of West Country Heronries, refer to the Knowle colony as situated "on a cone-shaped hill, on which almost every tree bears one or more nests." This note probably refers to a date several years previous to 1895, as my latest informant from Dunster—one who has known the heronry for twenty years—states that the numbers now are limited to six or eight pairs, and have not varied much since he has known the colony.

5. *Mells Park* (Frome).—A small colony consisting of two or three pairs has nested in Melcombe Wood, perhaps irregularly, during the last twenty years, and if it does not still exist it has only vanished during the last year or two. This may be an offshoot from the ancient heronry of Longleat Park, six miles away, but just over the Somerset border.

VERTEBRATES OF WALES AND IRELAND :
CORRIGENDA ET ADDENDA.

BY H. E. FORREST.

OWING to the passing of my recent paper on this subject (*ante*, p. 321) through the press not giving time to submit it for revision to Irish naturalists—a course which I fully intended to take—there are several regrettable mistakes in it, whilst no mention is made therein of the writings of recent authors on the subject. Of these the most important are Dr. Scharff's book on 'European Animals,' and the Handbook prepared for the Dublin Meeting of the British Association in 1908. For these errors and omissions I can only express regret. The following are:—

CORRIGENDA.

BATRACHIANS.—Of the three species of Newt only one occurs in Ireland—the Common Smooth Newt; the Great Crested Newt and Palmated Newt are unknown there. Whilst the Common Toad is absent from Ireland, the Natterjack is found in a small area on the south-west coast (*cf.* Dr. Scharff in both works mentioned above).

MAMMALS.—The Noctule is absent from Ireland. Major Barrett-Hamilton tells me that the large Bats taken in that country are Leisler's Bat—a species not yet authenticated in Wales. According to Dr. Scharff (*Proc. Roy. Irish Academy*, January, 1906) the remains of Cat found in cave-deposits in Co. Clare belong to the form known as the African Wild Cat, *Felis ocreata*.

ADDENDA.

With regard to the Fishes of the two countries, it is worth mention that the Gwyniad of Wales is represented in Irish waters by a closely allied species, the Pollan; whilst the Welsh Char is represented in Ireland by a number of local subspecies. Mr. C. Tate Regan, in a recent paper (*Ann. & Mag. Nat. Hist.* September, 1908), distinguishes six species of Irish Char.

Mr. R. J. Ussher points out that, whilst the majority of prehistoric mammals found in Welsh cave-deposits occur also in Ireland, the Lion, Glutton, Rhinoceros, and Bison have not yet been identified in Ireland.

In connection with the theory advanced to account for the absence of certain species from Ireland, the following are factors of some importance :—

(1) It is evident from the contour of the sea-bottom that a narrow land-connection between Scotland and the North of Ireland persisted for some time after Ireland had become separated from England by the sea.

(2) At the time when Great Britain and Ireland were still part of the Continental mainland, a great river existed which discharged its waters into the Arctic Ocean between the Shetland Islands and Norway; the Rhine, Thames, and other rivers of this region were all tributaries to this great river.

With regard to the first of these statements, I hardly think that the existence of this land-connection would affect the question of distribution of species. Any land animal extending its range into Great Britain after the sea had severed Ireland from England would not be likely to travel into North Ireland from Scotland, because that would involve a movement southwards, *i. e.* in a direction contrary to the general trend of all such species towards the north-west.

As to the second statement above, it is evident that the existence of a big river with tributaries extending over the entire district might have an important bearing on the distribution of freshwater fishes, because it would form a means of communication between streams and lakes now entirely severed from one another. In this way we may imagine that the various species (or subspecies) of Char and the different members of the genus *Coregonus* (Gwyniad, Pollan, &c.) may have each originated from a single species spread throughout this great river system. The local races subsequently acquired special characters owing to isolation and the influence of different environment in each case.

NOTES ON THE EPHEMERIDÆ.

BY GORDON DALGLIESH.

WITH the Mayfly will always be associated the name of Swammerdam, who did so much to further our knowledge of this insect. When we read that the tools employed by Swammerdam for the dissection of a Mayfly larva were so small as to require whetting under a microscope can we truly appreciate the labours of this indefatigable naturalist?

Swammerdam was born in Holland, and early inherited his father's tastes for the collection and study of natural history objects. Swammerdam, we are told, was famous for his minute dissections and inflated and injected preparations, and it was only after a number of hardships and rebuffs that his work was acknowledged and appreciated in France. From constant toil and the eye-trying work of the microscope, at the early age of thirty-two Swammerdam was completely worn out, nearly blind, and narrowly escaped death. About this time, too, owing to some disagreement with his father, he was turned away from the home that had hitherto sheltered him, and, after a life of abject poverty, died at the age of forty-three. Swammerdam's great work was posthumous, and was known as the '*Biblia Naturæ*.' This contained the complete life-histories of over a dozen insects. The history of the Mayfly was published during Swammerdam's life in 1675.

The Mayflies belong to the order Neuroptera, which order may be so called our oldest insects, for in the rocks formed during the remote Devonian period we find fossil "Mayflies," although of ancient type (*Platephemera antiqua*), during the time of the deposition of our coal-fields.*

There are about thirty-eight species of British Mayflies (W. F. Kirby, *in lit.*), and they are all extremely delicate insects, having the anterior wings largely developed and the posterior

* According to Hagen (Bull. Mus. Harvard, viii. p. 276 (1880-1)) this fossil may be regarded as a dragonfly. Brongniart considers it to be more allied to the Mayflies (*cf.* Sharp, Cambr. Nat. Hist. v. p. 428).—ED.

small or wanting. They have a rudimentary mouth, and the body ends in two to three long anal setæ or long hair-like filaments. They are remarkable for undergoing four instead of three changes from larva to perfect insect, and when fully formed the pupa comes out of the water and issues forth from this stage as a pseudo-imago, looking exactly like the perfect fly, but covered with a delicate membrane, which after a time is cast off, and the true imago appears. The vast swarms of Mayflies seen over the African lakes are utilised and compressed with gnats in the form of cakes by the Africans.*

The popular belief is that Mayflies in their perfect state invariably die after the sunset preceding their time of development from nymph to fly. Many of them, it is true, live for a few hours only, though a period of two days is on record.† I myself have proved that their vitality is not so feeble as is generally supposed.‡ One specimen (*Ephemera danica*) was on my setting-board for three days, and then still retained signs of life, for when touched it responded by gently waving the long setæ to and fro, although it had previously lain in the killing-bottle for quite five minutes. The long tail-filaments, when examined under a microscope, bear a close analogy in structure with the antennæ of many insects, and doubtless serve the function of such, the true antennæ being extremely small. In this supposition I have frequently held live Mayflies by their wings, and they invariably moved their setæ in exactly the same manner that many insects move their antennæ. A similar contrivance is found in the male Crickets (*Gryllotalpa*), which possess anal appendages covered with stiff hairs (an analogy to these is found in the Mayfly larvæ). These act as delicate organs of perception, and are employed by the Cricket when moving backwards in its subterranean progress. The anal setæ of the Mayflies serve another function when spread out (in exactly the same manner that the feathers in a bird's tail are spread out); they assist in flight. When soaring upwards the setæ are not spread

* Theobald.

† Miall, 'Natural History of Aquatic Insects.'

‡ De Geer kept *Ephemera vespertina* alive for eight days, and Mr. Stephens mentions having kept specimens of *Clæon dipterum* alive above three weeks (cf. Westwood, Mod. Class. Ins. vol. ii. p. 27, note).—Ed.

out, but frequently are so in descent, and may act in much the same way as a parachute breaking the insect's fall.*

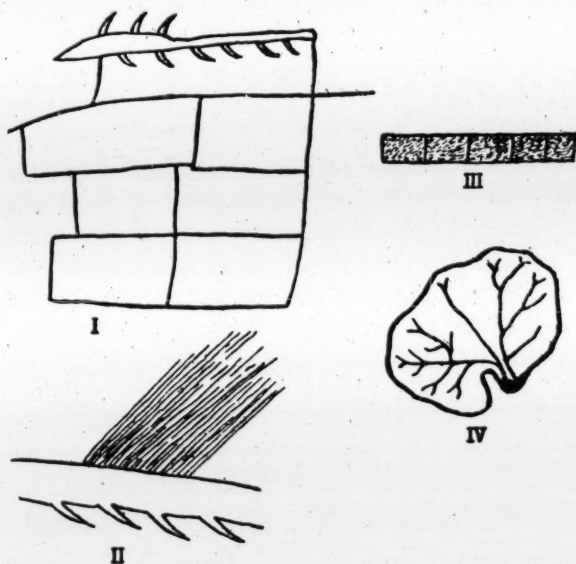
The flight of Mayflies is extremely pretty to watch. They rise and fall in regular rhythm. *Ephemera vulgata* looks very dark in flight; it either rises and falls or else flies straight away very swiftly, and often very high. *E. danica* looks reddish in flight, and flies if anything swifter than the last, but low, and never, according to my observations, very high. This species frequents swift-running streams. *E. vulgata* generally appears with due regularity the first week in June, and I have seen species of Mayflies from then through every month up till the first week in October. One quite small species, only slightly larger than a gnat, which unfortunately I was unable to identify, I found in swarms by Frensham great pond in South-west Surrey. This had a soaring flight, and often flew very high. It hardly appeared to move the wings at all. Numbers of these small flies settled on me, and left their pseudo-imaginal skins on my coat. Curiously enough, some time after this I happened to read in Miall's 'Aquatic Insects' the following passage:—"I saw in the evening a great crowd of small flies a little larger than gnats. So many settled on my clothes that I was completely covered with them, and great numbers left their thin pellicles behind on my clothes."

When the fly of *Ephemera vulgata* is examined microscopically some remarkable features present themselves. One is at once struck with the square appearance of the network of the wings, some of the veins forming almost perfect squares. On the outer nervure of the fore wing is seen a curious "thorn"-like structure exactly resembling small rose-thorns. A similar structure is seen on a dragonfly's wing, only on that insect the "thorn" structure is scattered all over the wing, and not confined to a given area as in the Mayfly's wing. This "thorn" structure I have observed also on the outer abdominal appendages of a Mayfly larva (*Clæon*). The tail-filaments in the fly are also

* "I found that when *Ephemera* fell upon a napkin spread over my knees they could only rise into the air with the help of their long tail-filaments." And again: "Now and then it rests upon the water with the help of the tail-filaments, so . . . prevent the insect from sinking."—Swammerdam.

divided up into squares, each square being covered with minute hairs.

The eggs of Mayflies are laid on the surface of the water, the whole quantity being deposited at the same time. The eggs, being heavier than the water, sink immediately. In *Ephemera vulgata* the eggs are described by Dr. H. Grenacher as possessing striated caps of reddish brown colour, which invest both poles of the egg. A mushroom-shaped stalk serves as a base and springs directly from the end of the egg. This is of firmer consistence than the striated part, whose numerous and close-set fibres radiate regularly from it. The fibres had previously been described by Leuckart as bundles of spermatozoa. No definite



information as to the functions of these striated egg-caps has been obtained. Grenacher has also described what appear to be long anchoring threads attached to the eggs of *E. vulgata*. From eight to twelve of these are fixed to a zone which encircles the egg transversely towards one end. Each thread bears a small knob at its free end, and these knobs apparently become entangled at the bottom of the stream and moor the eggs.*

The larvæ of Mayflies may be conveniently divided into three groups, namely: 1, burrowing; 2, swimming; and 3, creeping larvæ. The body of a larva is composed of fourteen segments,

* Miall, 'Natural History of Aquatic Insects.'

and the head is provided with long slender antennæ. The mandibles are long and curved. The three abdominal appendages present under the microscope some interesting features. The larva of a *Clæon* has three tail-filaments. The middle filament bears on each side a number of very fine hairs. The two outer filaments have only hair on the left side, bearing on the right side the "thorn"-like structure referred to above. The organs of respiration approach closely to gills in higher animals in the form of leaf-like plates ranged on each side of the body. These, when the living larva is viewed under the microscope, move up and down with great rapidity, causing a constant stream of water to flow inwards.

Mayfly larvæ, unlike many other aquatic larvæ, *never* come to the surface to breathe, but obtain all their oxygen directly from the water. The larva grows but slowly, some taking two years to complete their metamorphosis.

The pupa is active and resembles the larva, and traces of rudimentary wings only distinguish it from the latter.

EXPLANATION OF ILLUSTRATION (p. 459).

I. Portion of wing of *Ephemera vulgata*, showing "squares" and "thorn" structure.

II. Tail-filament of a *Clæon* larva, showing hairs and "thorn"-like structure.

III. Portion of tail-filament of fly of *Ephemera vulgata*, showing divisions covered with minute hairs.

IV. Gill of *Clæon* larva.

NOTES ON THE MAMMALS OF THE CHANNEL ISLANDS.

By R. H. BUNTING.

It is surprising that so little attention has been paid to the critical study of the Channel Islands Mammalia. One would have expected that the intensely interesting results which were obtained by collectors on such islands as St. Kilda, Skomer Island, the Hebrides, and the Orkneys, would have led to a thorough investigation of all the smaller islands lying round our coasts, and that the Channel Islands, on account of their easy access and pleasant situation, would have been among the first to be worked. As it is, however, no well-authenticated list of local species appears to be available, except such as occurs in the latest edition of Ansted and Latham's 'Channel Islands,' published in 1893, which is by no means a critical one. Since this was so, and because the National Collection was exceptionally poor in specimens from these islands, I was induced to spend my short vacation there, in the earlier part of last summer, for the purpose of collecting. Unfortunately my visit had to be too brief to put in more than a fortnight on Jersey and three days on Guernsey.

Specimens of the following species which I brought back are now in the National Collection, after having been critically examined by Mr. Gerrit S. Miller :—

FROM JERSEY.

MOLE (*Talpa europæa*) occurs in all parts of the island, some fields being completely overrun by it. Coloured varieties (saffron-tinted) are occasionally found.

COMMON SHREW (*Sorex araneus*) is fairly frequent, and shows a slight insular variation in the anterior breadth of the palate. Jersey specimens, as is usual with this animal, vary in coloration, those with the darker upper side sharply differentiated from the predominating lighter under side.

STOAT (*Putorius* sp.), although said to be fairly common round the coast—where the Rabbits have been driven by cultivation of the interior—I was able to obtain only one specimen, and that given me by a friend, nor have any others been taken since by those who promised to keep a look-out for it. This specimen was caught in a Mole-trap in Trinity, and presents a definite difference from either the English or Irish species, but Mr. Miller has been obviously unable to describe it as a distinct species until other specimens come to hand to confirm its peculiarities.

WOOD MOUSE (*Apodemus sylvaticus*) is about as frequent as in England, and shows no difference from the type. Up to the present there is no record of *A. flavicollis*.

HOUSE MOUSE (*Mus musculus*) occurs in its usual habitats all over the island. Specimens taken from the sandy soil of St. Ouens, where they are said to have occurred before the advent of houses, show a slightly sandy coloration.

BROWN RAT (*M. decumanus*) is as ubiquitous as ever.

JERSEY VOLE (*Evotomys cæsarius*). — This interesting species has been recently described by Mr. Miller (Ann. Mag. Nat. Hist. February, 1908) from two specimens in the National Collection, taken by Capt. Barrett-Hamilton at St. Heliers in 1896. It is related, according to Mr. Miller, to *E. skomerensis* on account of its possessing "a well-defined third re-entrant angle on the inner side of third upper molar," but differs from that species in its "shorter, more evenly cuneate nasals, broader rostrum, shorter tail, and much darker colour." Specimens which have recently been sent to me show measurements slightly exceeding those of the type-specimens. For instance, one (female) taken at Trinity, Oct. 9th, measures as follows (the corresponding measurements of the type are added in parenthesis for comparison):—Head to tail, 165 (145) mm.; hind foot, 18 (18); ear, 12 (11). Skull: Condyllo-basal length, 27 (25·6); zygomatic breadth, 15·5 (14); interorbital constriction 4·1 (4); occipital breadth, 12 (11·6); occipital depth, 6·8 (7); nasals, 7·8 (7); diastema, 7·8 (7·2); mandible, 15·8 (15·4); maxillary tooth-row, 6·4 (6·2); mandibular tooth-row, 6 (6).

The following measurements are taken from eighteen males and twelve females:—

	Head and body.	Tail.	Hind foot.	Ear.
Maximum...	120 mm.	54 mm.	21 mm.	12·5 mm.
Mean.....	103·6 mm.	46·95 mm.	19·03 mm.	11·5 mm.
Minimum	91 mm.	41 mm.	17·5 mm.	10·5 mm.

It is very abundant in Jersey, frequenting such habitats as *E. glareolus* does in England.

FROM GUERNSEY.

MUSK-SHREW (*Crocidura russula*).—Much more frequent here than the Common Shrew is in Jersey.

WOOD MOUSE (*Apodemus sylvaticus*). Again no *A. flavicollis*.

HOUSE MOUSE (*Mus musculus*).

BROWN RAT (*M. decumanus*).

FIELD VOLE (*Microtus* sp. aff. *agrestis*).—Mr. G. Dalgliesh called attention to the large size of the Guernsey Vole in this Journal (Zool. May, 1906, pp. 172–3), and suggested that it might prove to be an undescribed species or form. Unfortunately my very limited stay on the island prevented my taking more than one adult specimen of this animal. So that the question whether the Guernsey Vole is a new species or merely a form of *M. agrestis* must remain open until other specimens are to hand. Its large size and other peculiarities tend to indicate that it is a new species.

For the following list of Channel Islands Mammals, and for nearly all of the appended notes, I am indebted to Mr. J. Sinel, of Jersey, the able Curator of the Museum of the Société Jersiaise:—

STOAT.—Occurs in Jersey, Guernsey, Sark (Alderney?).

HEDGEHOG.—Occurs in Jersey and Guernsey. Probably introduced; much more common now than thirty years ago.

MOLE.—Occurs in Jersey and Alderney only.

MUSK-SHREW (*Crocidura russula*).—Common in Guernsey, rare in Jersey.

COMMON SHREW (*Sorex araneus*).—Common in Jersey.

PIPISTRELLE BAT.—Common in all the islands.

SEROTINE BAT.—Only known to occur locally by one specimen, now preserved in a private collection; it was taken in Georgetown, Jersey, in the autumn of 1893.

LONG-EARED BAT.—Common in all the islands; more abundant in Jersey than the Pipistrelle.

GREAT HORSESHOE BAT.—Recorded for Guernsey only, where it is common, but may possibly occur in Jersey also.

BARBASTELLE BAT ?.—A specimen (apparently of this species), now in the local museum, was taken from a cat in St. John's Road, St. Heliers, Jersey, September, 1907.

BROWN RAT.—Has not yet appeared in Sark, where *M. rattus* occurs in great numbers. Since it is found even on isolated rocks around the island, one may suppose that the Black Rat has for once been successful in overwhelming its powerful brown competitor, probably owing to superior numbers.

BLACK RAT.—Although abundant in Sark is getting rare in the other islands. The "Blue" Rat, which occurs on the Ecrehou Rocks, a few miles north-east of Jersey, belongs to this species. The Black Rats on Herm are much stronger and more robust animals than those on Jersey or Sark, and have longer hair on their backs (35 mm.) than the latter.

The Alexandrine Rat has been taken in Jersey.

HOUSE MOUSE.

LONG-TAILED FIELD MOUSE.—Occurs in Jersey, Guernsey, and Alderney.

FIELD VOLE.—Has not been taken in Jersey.

BANK VOLE.—Probably occurs only in Jersey.

WATER VOLE.—Once plentiful in Jersey, now rare.

RABBIT.—At one time native in probably all the islands, but now hybridized by imported "Belgian Hares" in Jersey, and by the English animals, which have so often been put down in Guernsey.

HARE.—Was abundant in Jersey up till 1868, probably indigenous, often added to from France, and now scarce.

SQUIRREL.—Once indigenous, introduced several times during the last twenty years, now fairly numerous.

FOX.—Was fairly numerous in 1850–60, and probably native, but is now extinct.

Mr. Sinel, in a recent paper, read (October 21st, 1908) before the Guernsey Society of Natural Science, has dealt with the distribution of the Mammalia of the Channel Islands. It is interesting to notice, in this respect, that one finds on Guernsey a *Microtus* and a *Crocidura*, whilst on Jersey an

Evotomys and a *Sorex* occur. Also that the *Evotomys*, which inhabits an island with so mild a climate as Jersey possesses, is closely allied to *E. nageri*, *E. vasconicæ*, and *E. norvegicus*, three species found in the colder parts of Europe.

OBITUARY.

CHARLES THOMAS BINGHAM.

ENTOMOLOGY has sustained a severe loss in the death of this well-known and amiable naturalist, at an age (sixty-one) when his friends might reasonably have hoped that many years of usefulness still lay before him. He was born in Ireland on April 16th, 1848, and died at his residence in West Kensington on October 18th, 1908.

As a boy, he was fond of fishing and shooting and other rural occupations, and on proceeding to India he devoted much of his spare time to the study of birds and their habits. Bingham's first paper was on *Anastomus oscitans*, published in 'Stray Feathers' in 1876, when he was Lieutenant in the 33rd N. I.; but he had been making ornithological observations for at least two years previously. At that time 'Stray Feathers' was edited by Allan Hume, with whom Bingham became very intimate. Bingham continued to contribute to 'Stray Feathers' till 1880. By this time he had risen to be Captain. Since 1877 he had been stationed in Burma, where much of his remaining life was spent, and where he ultimately became Conservator of Forests. From 1880 to 1893 he published nothing of importance, though he continued to collect and observe birds and insects. In 1894, however, he took up the study of Entomology in earnest, devoting himself at first to Hymenoptera and subsequently to Butterflies. His first entomological paper (on Hymenoptera) was published in the 'Journal' of the Bombay Society of Natural History, vol. viii. in 1894. He was in London in 1895, and was then Lieut.-Colonel in the Bengal Staff Corps. About this time he joined the Entomological and Zoological Societies.

Bingham then undertook, at first during a visit to London and afterwards when he settled in London on retiring from his official duties, to arrange the collection of Aculeate Hymenoptera in the British Museum. In 1896 he arranged the families *Pompilidæ* and *Sphegidae*, and from 1901 to 1908 the families *Formicidæ*, *Mutillidæ*, *Evaniidæ*, and *Chrysididæ*. He also undertook to write the volumes on Aculeate Hymenoptera and Butterflies for the 'Fauna of British India,' then edited by Dr. Blanford, and on the death of the latter Bingham succeeded him as Editor of the series. Two volumes each were published, but the concluding volume on Butterflies remains unfinished. Since his retirement Bingham had suffered frequently from malaria, but though his health had been failing otherwise for some time, no serious consequences were feared till shortly before his death. He leaves a widow and two sons to mourn his loss.—W. F. K.

NOTES AND QUERIES.

MAMMALIA.

Cornish Mammals.—My late uncle, Col. C. L. Cocks, of Treverbyn Veon, in St. Neot's parish, near Liskeard, told me that the Marten used to be known in Cornwall as "Fairy," pronounced "Vairy," and suggested a connection with the heraldic fur—"Vair," although the "tinctures" as blazoned are by no means "proper" for this species. He told me of two or three occurrences in the county which I have since forgotten, but in one instance a Marten was found and run by foxhounds, which is very possibly the case recorded by the late Mr. Rodd in 'The Zoologist' for 1878, quoted by Dr. Clark (*ante*, p. 413). On June 5th, 1883, I sent my uncle a pair of Pine Martens, which he turned out at Treverbyn. The male was bred in my collection, and born on April 7th, 1882, and his mate was expressly purchased from the Zoological Gardens. She had evidently not been entered on the strength of the establishment, as no recent arrival is recorded at that time in the 'List of Animals,' either in the 1883 or the next (1896) editions, but she came, I think, from Wales. My uncle never saw any more of them, except once, only a few months (or perhaps weeks) afterwards, when, as he was driving homewards one day from the Liskeard direction, and when abreast of his own land on one side of the road, he saw a Marten in a tree at the edge of the wood on the opposite side. Several years subsequently a friend told me of some animals of which he had heard mysterious reports, near Dartmouth, and thought they might be Martens. As Dartmouth is less than fifty miles from where the two were turned out, I always hoped that this might be news of them, or of descendants; but as Dr. Clark mentions (*loc. cit.*) that "somewhere about 1885 it seems another example was killed in the East Looe Valley, a few miles from Liskeard," this is probably the register of death of one of the two, as the locality is barely ten miles from Treverbyn. But even so, as one or two breeding seasons had elapsed before that catastrophe (and only one individual is accounted for), it is just possible that there are survivors. A note on Polecats in Cornwall, by me, was printed in 'The Zoologist' for 1885. There used to be a large colony of Badgers



AQUATIC WARBLER (*Acrocephalus aquaticus*).

on my uncle's property above mentioned, but I have heard nothing about them recently. A notable feature was the wide, much trodden road leading from the hill-top on which the setts were down to a spring where the Badgers went to drink at the foot.

At places on the south coast of Cornwall I have been surprised at the readiness with which Otters negotiate the two hundred feet high cliffs. They get their living out of the sea at the bottom, but their marks are, or were, almost ubiquitous at the top. It seems extremely doubtful from what I know of the Grey Seal whether white pups ever swam, voluntarily or involuntarily, many yards; and so, unless they were born on the mainland (p. 415), it would be extremely difficult to explain how they got there! I have seen Ca'ing Whales between Holyhead and Dublin Bay, so one would expect them to get stranded sometimes on the north coast of Cornwall. — ALFRED HENEAGE COCKS (Poynetts, Skirmett, near Henley-on-Thames).

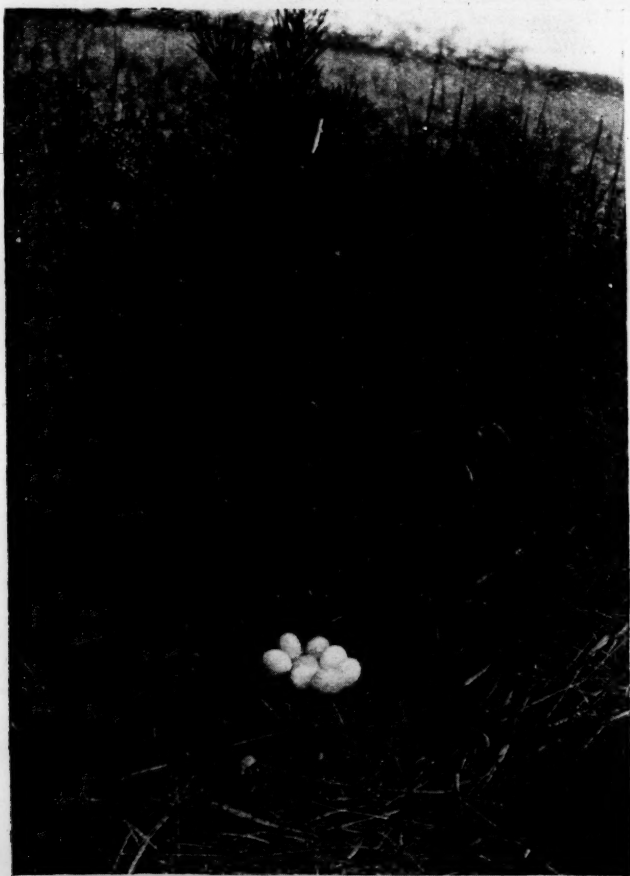
AVES.

Aquatic Warbler near Eastbourne (Plate V.). — On Oct. 7th of this year I shot an Aquatic Warbler (*Acrocephalus aquaticus*) on the Crumbles. I was attracted by the striking eye-stripe when the bird put its head out of a tamarisk-bush. Its legs were light and the tail-feathers noticeably pointed. It gave one the impression of being a more fragile bird than a Sedge-Warbler. The weather at the time was unusually fine and warm; wind south-east. — E. C. ARNOLD (Eastbourne College).

Fecundity of the Chaffinch.—My experience in connection with the egg-laying capacity of this bird is certainly at variance with that of Mr. Ellison as quoted by Mr. Butterfield (*ante*, p. 428). My note-book accounts for one hundred and thirty-two nests of the Chaffinch, all containing eggs, fifty-seven nests having been found in Southern England and the remainder in Yorkshire and Lancashire. On no occasion have I found more than five eggs in a nest; less than five, however, is not a common clutch. But I have found clutches of six eggs on one or more occasions in nests of the House-Sparrow, Linnet, Lesser Redpoll, Bullfinch, and Greenfinch; the last-named species, in my experience, most frequently of all finches that I know exceeds the clutch number of five. I have on one occasion found a Greenfinch's nest containing seven eggs. — WALTER GYNGELL (Scarborough).

Short-eared Owls nesting at Rainworth.—During last autumn and winter we had seven or eight of these birds (*Asio accipitrinus*) in each

of two young plantations—one of forty-five acres, the other twenty-seven; both are full of white forest grasses. On walking through them about the middle of April I found a pair in each, and, as they were very quiet places, hoped they would nest. On May 1st I went into the twenty-seven acre wood, and after a short search found the nest, with eight eggs. It was in a part rather bare of young trees, and where there was a lot of long grass, and placed under a small



NEST OF SHORT-EARED OWL.

Scotch fir. I was very delighted, as they were the first I had ever seen, and the first ever recorded for Notts. — J. WHITAKER (Rainworth Lodge, Notts).

Honey-Buzzard (*Pernis apivorus*) in Suffolk and Norfolk.—Referring to Rev. F. L. Blathwayt's note (*ante*, p. 428) respecting the occurrence of the Honey-Buzzard (*Pernis apivorus*) in the Eastern Counties

last September, I know, in addition to the three already recorded by him, of two others being obtained. One was shot near Beccles and the other a few miles north of Great Yarmouth. Both of these birds were of the dark form, and are now in the possession of Messrs. W. Lowne and E. Saunders, local taxidermists. On Nov. 9th I received, in the flesh, an example of the Merlin (*Falco aesalon*), which was shot on Breydon walls. It was a male in fine adult plumage. This species is here seldom obtained in this plumage.—B. DYE (Great Yarmouth).

Rough-legged Buzzard (*Buteo lagopus*) in Lincolnshire.—About Nov. 1st last a specimen of the Rough-legged Buzzard was obtained at Skegness, on the Lincolnshire coast. The bird is in the hands of a Lincoln taxidermist. This species is at times a somewhat numerous autumn immigrant to the east coast of Great Britain.—F. L. BLAYH-WAYT (Lincoln).

Interesting Ducks in Notts.—A pair of Pochard remained on the lake at Thoresby all the spring and summer; I myself saw them in March, May, and August. They most probably nested, but this fine lake (ninety-two acres) is full of Pike, some over thirty pounds, so young ducks, especially the diving ones, have little chance of attaining maturity. On March 21st, when fishing on the same piece of water, I saw four Scaup. On May 2nd I could only "spot" three—probably one was sitting—and again on August 14th I saw two females. Mr. Forrest, of Shrewsbury, was with me in May, and the Rev. B. E. Aplin in August. The birds were by themselves, and no mistake as to their identity was made. I also saw a solitary male Goosander there in March, May, and August; there were as many as twenty on it in February. On Nov. 2nd, when shooting Ducks on Rainworth Water, I shot an immature Common Scoter, a rare bird so far inland—over forty-five miles to nearest sea.—J. WHITAKER (Rainworth Lodge, Notts).

Golden-eye in Somersetshire.—It may be of interest to state that an immature male Golden-eye (*Clangula glaucion*) was shot on the river at Lymington, near Yeovil, on Oct. 31st.—GORDON DALGLIESH (Brook, Witley, Surrey).

Retention of Summer Dress by Great Crested Grebe.—Referring to Mr. Aplin's article on the above (*ante*, p. 407), the following may be of interest:—Mr. E. C. Stuart Baker, a well-known Indian ornithologist, wrote to me some little time ago that "*Podiceps cristatus* is quite common in Assam, and these birds retain their breeding

plumage all through the winter when fully adult." Writing on the Indian Dabchick (*P. capensis*), Mr. Finn (Zool. 1902, p. 303) records that a pair of these birds retained the summer plumage all the year round.—GORDON DALGLIESH (Brook, Witley, Surrey).

VERMES.

Sea-Mouse near Plymouth. — A small specimen of the above (*Aphrodite aculeata*) was brought to me recently by a fisherman who caught it in the Millbrook Lake while fishing for winkles and shrimps. It is a curious little thing, and measures about three inches long by one and a half wide (they are usually about five or six inches long, so that this specimen is not full grown). Its upper surface is covered by a double row of broad membranous plates overlapping each other, beneath which are the aerating gills, like little fleshy crests. These plates are covered by a sort of hair which springs from their outer margin, and besides these the upper surface is beset with bundles of iridescent bristles, brilliant as the plumage of the Humming-bird, and of which metallic blue, green, and gold are the predominating colours. The head is furnished with tentacular cirrhi, and tufts of bristles as well as tentacular limbs spring from each segment of the body.—WILLIAM HEARDER (195, Union Street, Plymouth).

Erratum.—In my note on "Old Local Bird Names" (*ante*, p. 431) the old local name of the Common Heron in South Pembrokeshire should be "lougie-crane," and not "hougie-crane" as is printed.—H. B. BOOTH (Ben Rhydding, Yorkshire).

NOTICES OF NEW BOOKS.

Bird-Hunting through Wild Europe. By R. B. LODGE.
Robert Culley.

WE well remember the astonishment experienced a few years ago on being told by an eminent geographer that there were still remote spots in South-east Europe that would well repay the journey of an explorer. Mr. Lodge has travelled in many parts of this wild country, and has written a book which, as might be expected, and as all naturalists desired, is largely ornithological in character. That Albania is a wild country is undeniable from the terse verdict of Mr. Lodge: "There are no roads, no bridges, no law, no protection, no justice for any-

body." In these primitive communities, however, it is evident that the sportsman or naturalist is far safer than a missionary, and this seems to be the case in all parts of the world; it has been the writer's experience in Malaya and Southern Africa, and Mr. Lodge evidently possessed that one touch of nature which opens the savage heart as well as the hut of its owner.

The opening chapters refer to birds'-nesting in Spain, but it is when we reach the Balkans that the narrative has perhaps the greater charm, and we are then in the haunts of the Pelicans (*Pelecanus crispus* and *P. onocrotalus*), the Great White Heron (*Ardea alba*), and the now unfortunately rare Lämmergeier (*Gypaëtus barbatus*), to find and photograph the nesting sites and to procure the eggs of which incited the journeys of our author. Though the quest of the Lämmergeier was not successful, the object of the expedition was achieved with the Pelicans and *Ardea alba*; while the labour, time, and exposure expended in finding these birds and their nests, and photographing them as well, prove that the ornithologist must if necessary possess the hardihood and take some of the risks of the big-game hunter. To these birds is attached a narrative and beautiful illustration that will alone make this book of permanent value in ornithological literature. Of course other birds were found, for the Balkans are the home of many Raptores, and regarding these we meet with a very interesting observation: "The number of addled eggs one finds in the nests of the great Raptores has been, as far as my experience goes, very large. I don't know how to account for it, unless it is that these birds, in the absence of enemies powerful enough to prey on them, and being but seldom molested by the inhabitants of these wild countries, live to a great age—in fact, outlive their powers of reproduction. In the course of the time covered by this book, for example, I have met with the following addled eggs of raptorial birds: one Bonelli's Eagle's and two Griffon Vultures' in Spain, three Sea Eagles' in Albania, and one Black Vulture's in Roumania."

The nests that may be found in Hungary are well described, and may probably incite some ornithologists to take an early holiday and make Budapest the jumping ground for a visit to a Palæ-arctic paradise so far as birds are concerned. The entomologist,

especially the lepidopterist, will read with eager interest that in the Dobrudscha *Lælia cænosa*, in the larval condition, were found in great abundance on reed-leaves.

We have enjoyed the perusal of this very fully and beautifully illustrated book. It is one in which the ornithologist will find facts, and it will rejoice the heart of the collector by recalling reminiscences of other days.

Experimental Zoology. Part I. Embryogeny. By HANS PRZIBRAM, Ph.D. Cambridge University Press.

WE read that the plan of an 'Experimental Zoology' grew out of the revised edition of the author's 'Introduction to the Experimental Morphology of Animals,' which appeared three years ago. This great work, revised, supplemented, and illustrated, will now be procurable in parts or subjects, of which the present is the first, and may be purchased separately, thus conferring a boon on students who do not desire the whole series. The English translation has been made by Miss Hertha Sollas, and has been revised by Mr. R. C. Punnett, of Gonville and Caius College.

Of course this work is of a much more technical and abstruse nature than the bionomical standard of zoology upheld in 'The Zoologist,' but it is the most complete work of the kind to date, and we give one extract in illustration. Under "Influence of External Factors" and the subject "Moisture" an abstract is given of one of the results obtained by P. Kammerer: "If we mature *Alytes* spawn in its normal environment on land we may observe that the larvæ which emerge and crowd into the water require a period of development many times longer than that of the other anura; and *Hyla* spawn matured on land gives larvæ which require a year for their development instead of a few weeks. But if we bring *Hyla* spawn to maturity in its normal environment in water the larvæ born in May are metamorphosed in August of the same year, and the same occurs when *Alytes* spawn developes abnormally in the water; the young toads are developed from the larvæ in an equally short time."

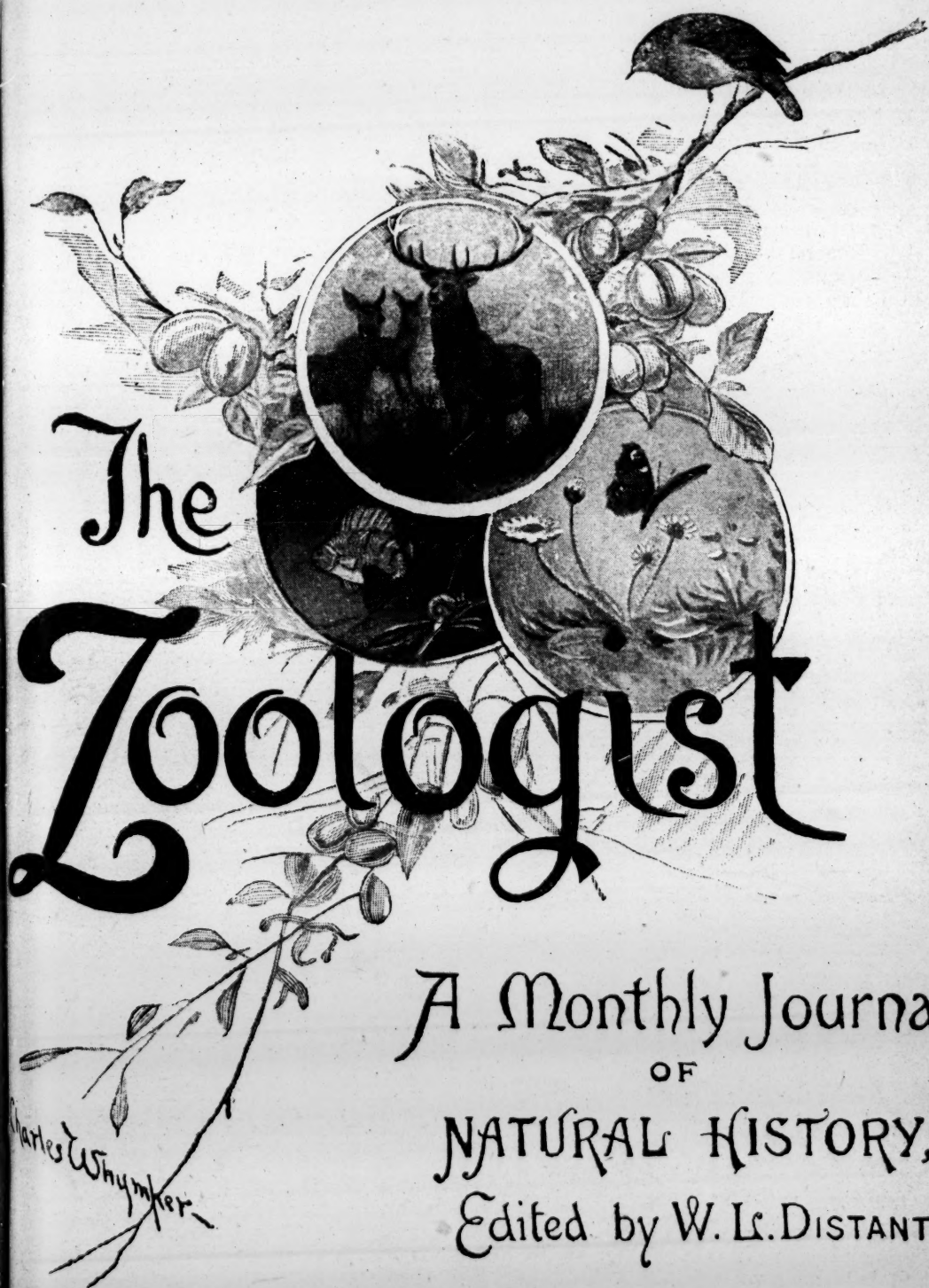
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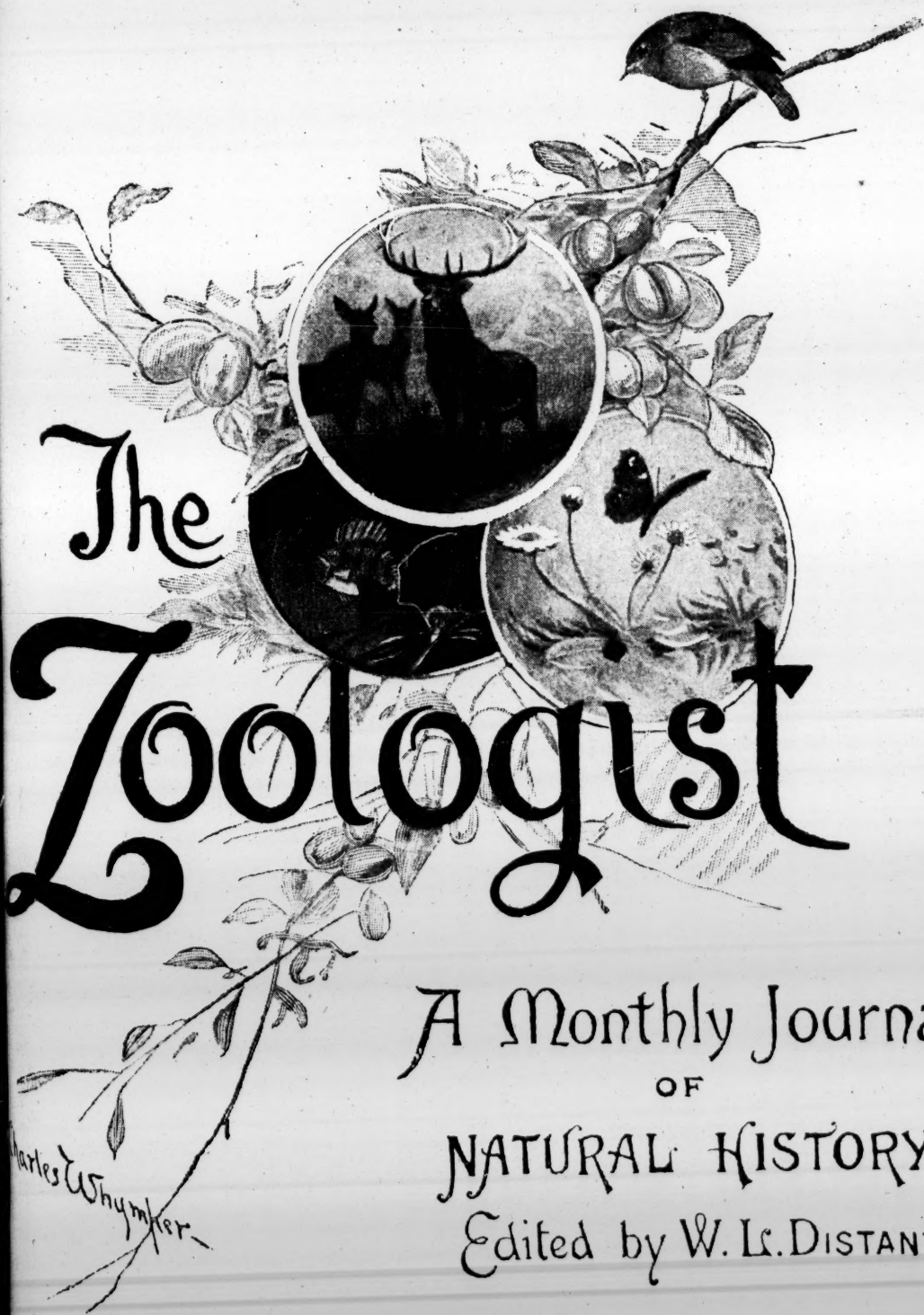
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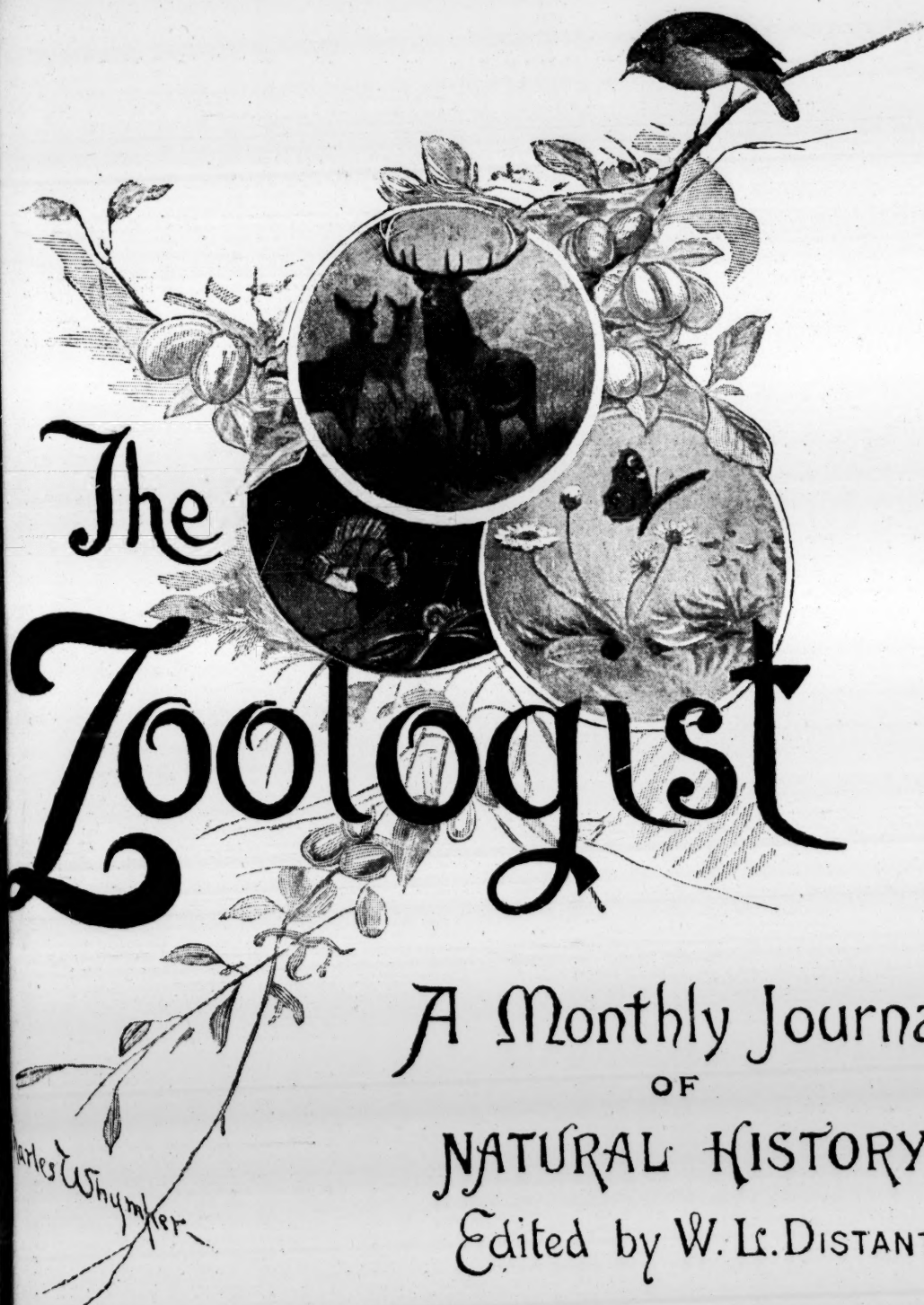
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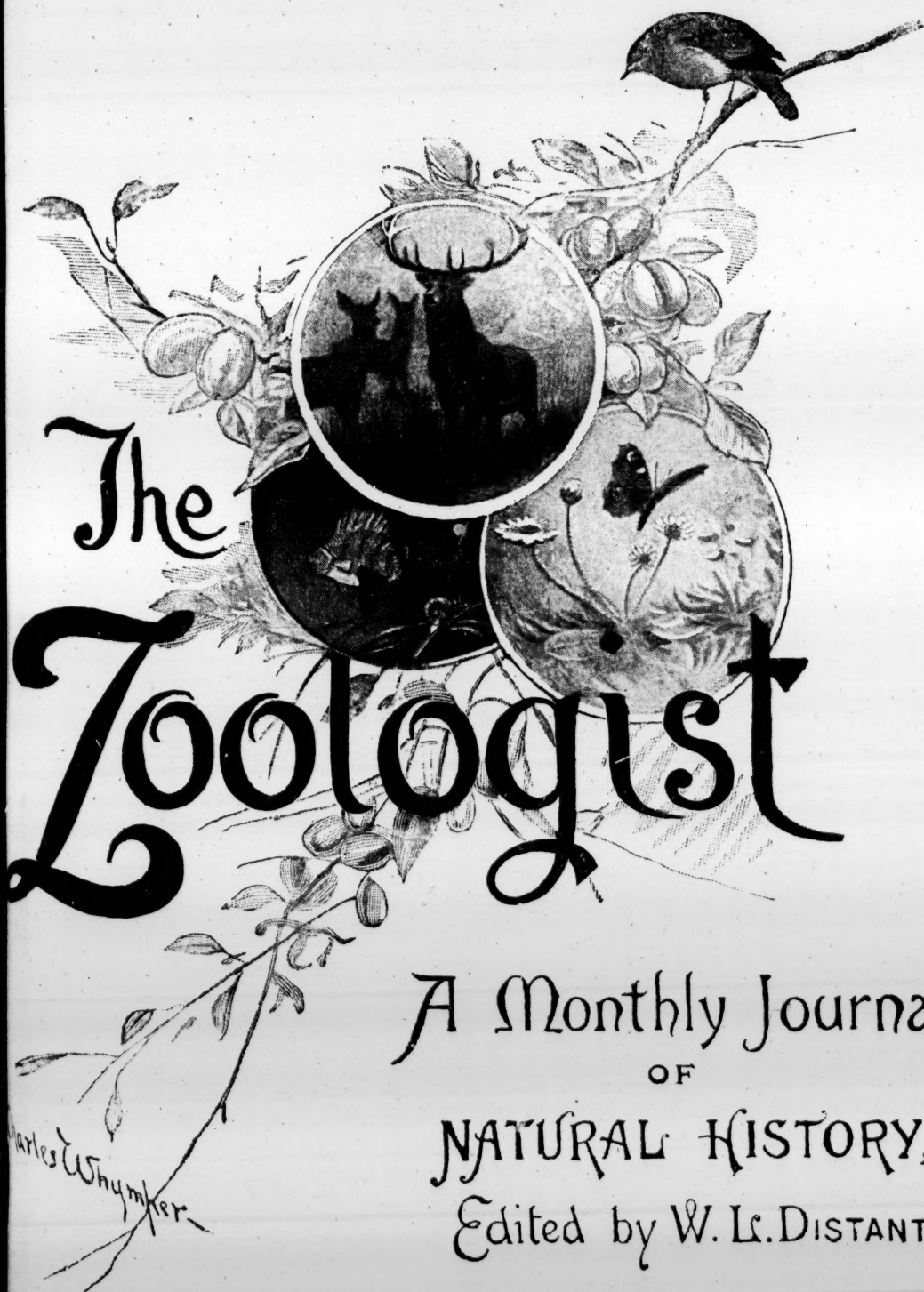
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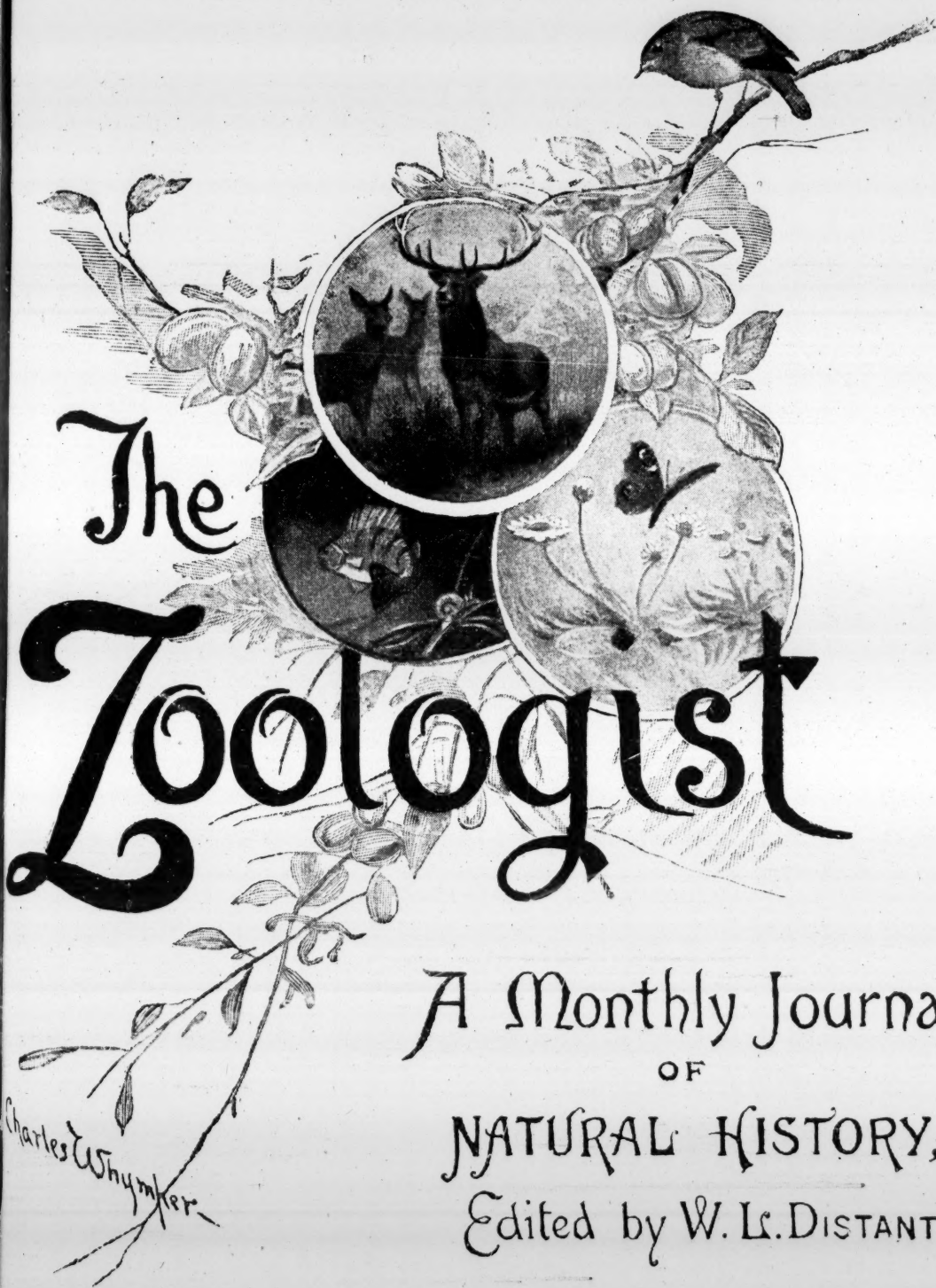
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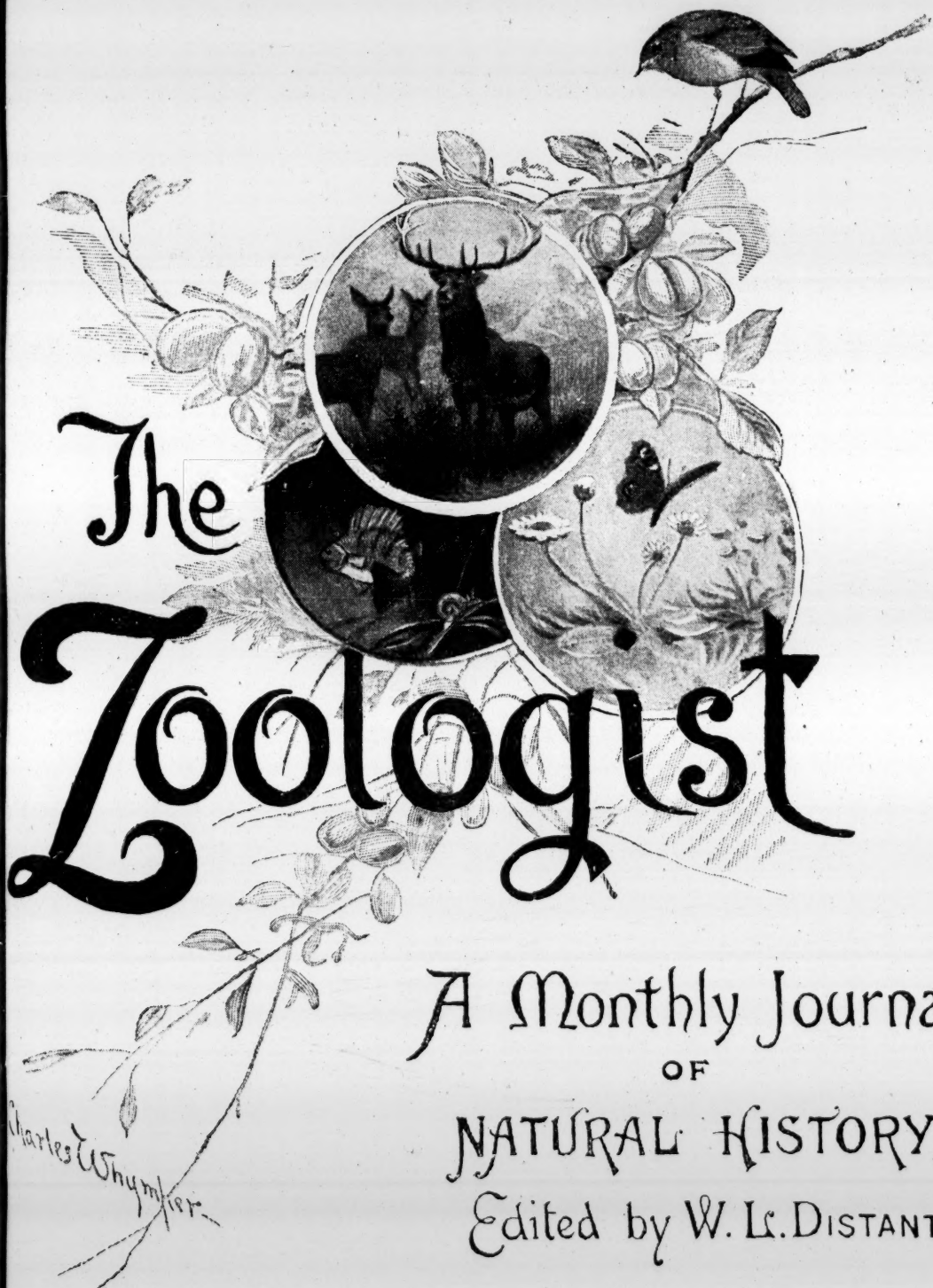
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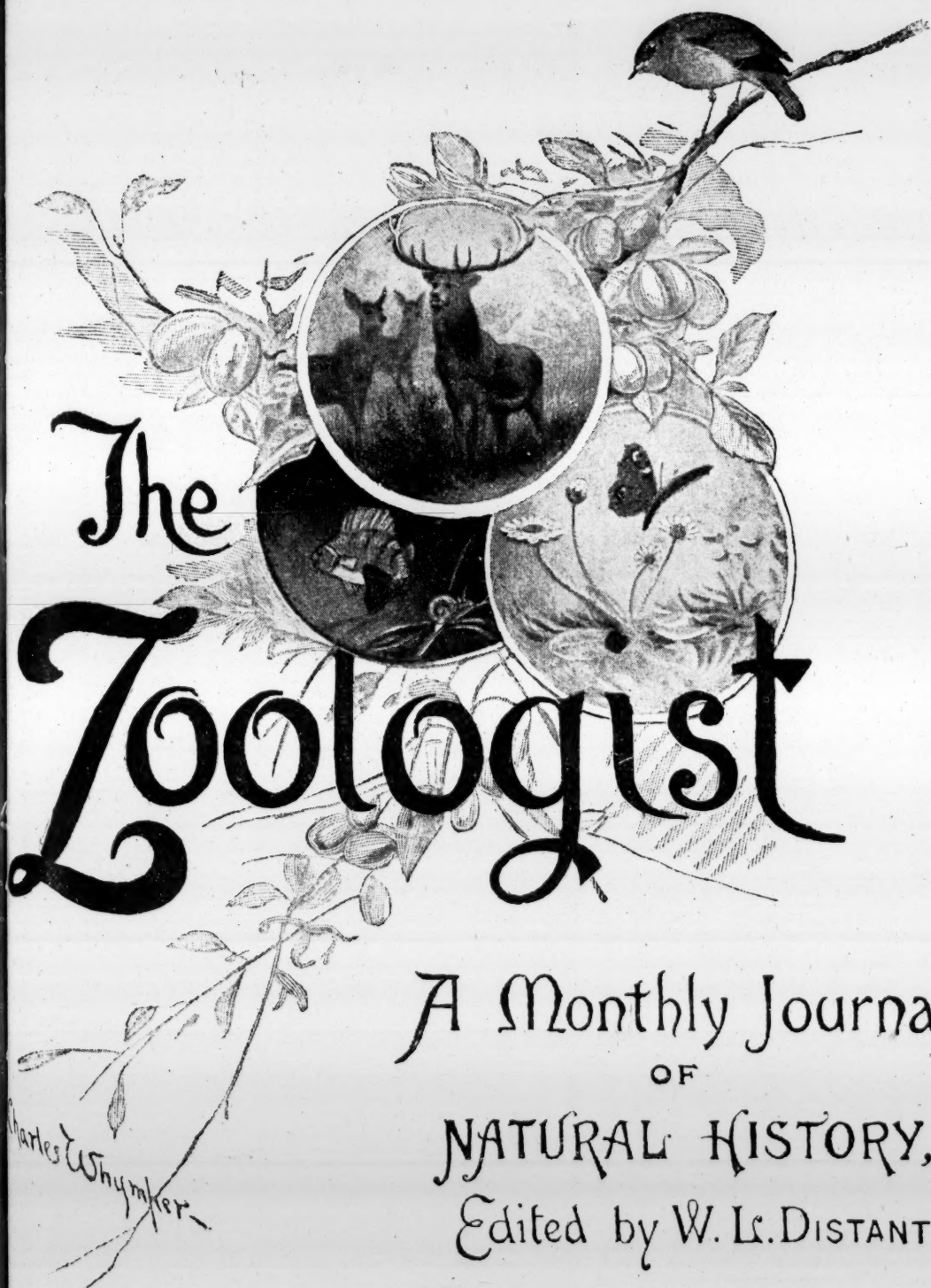
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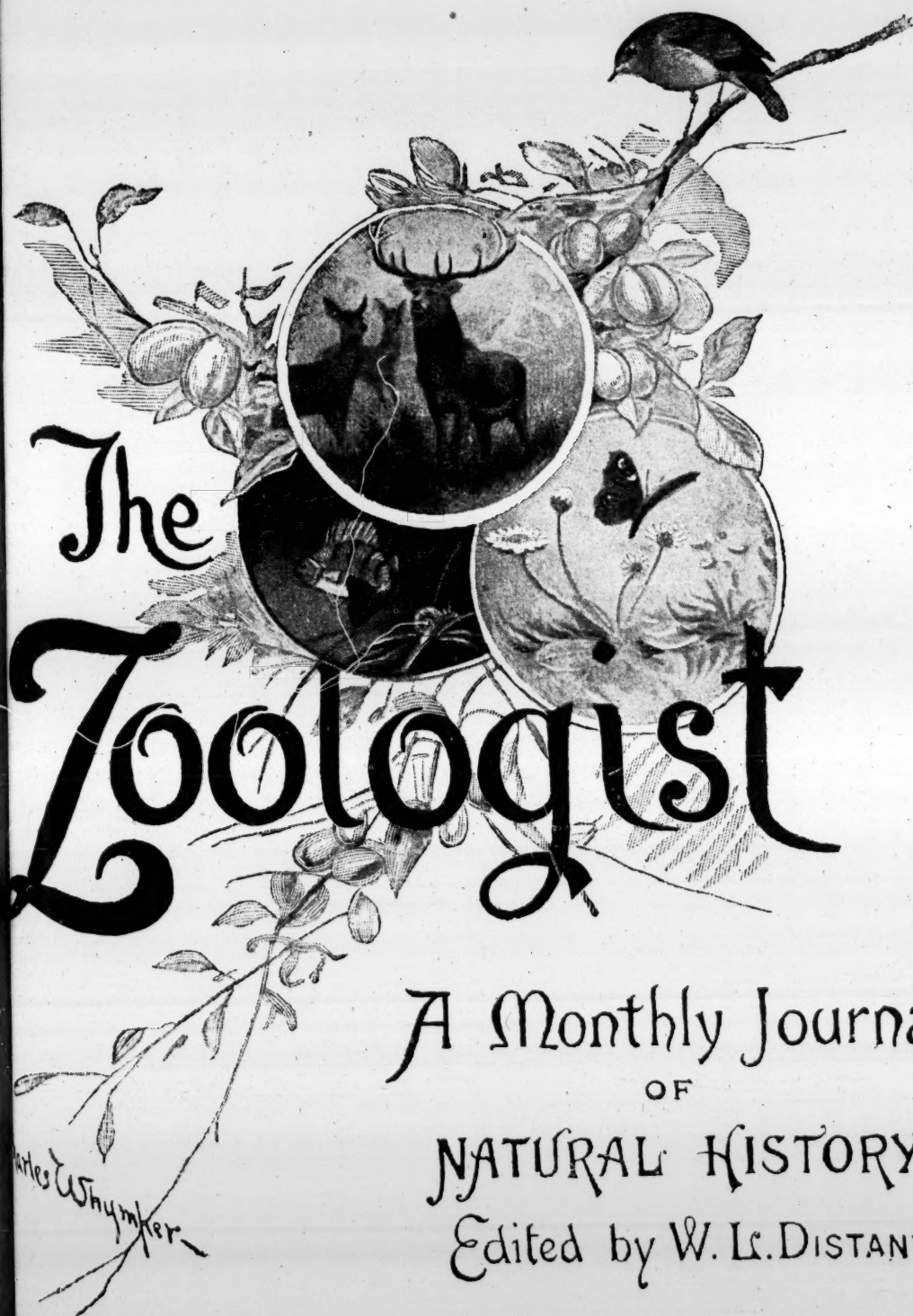
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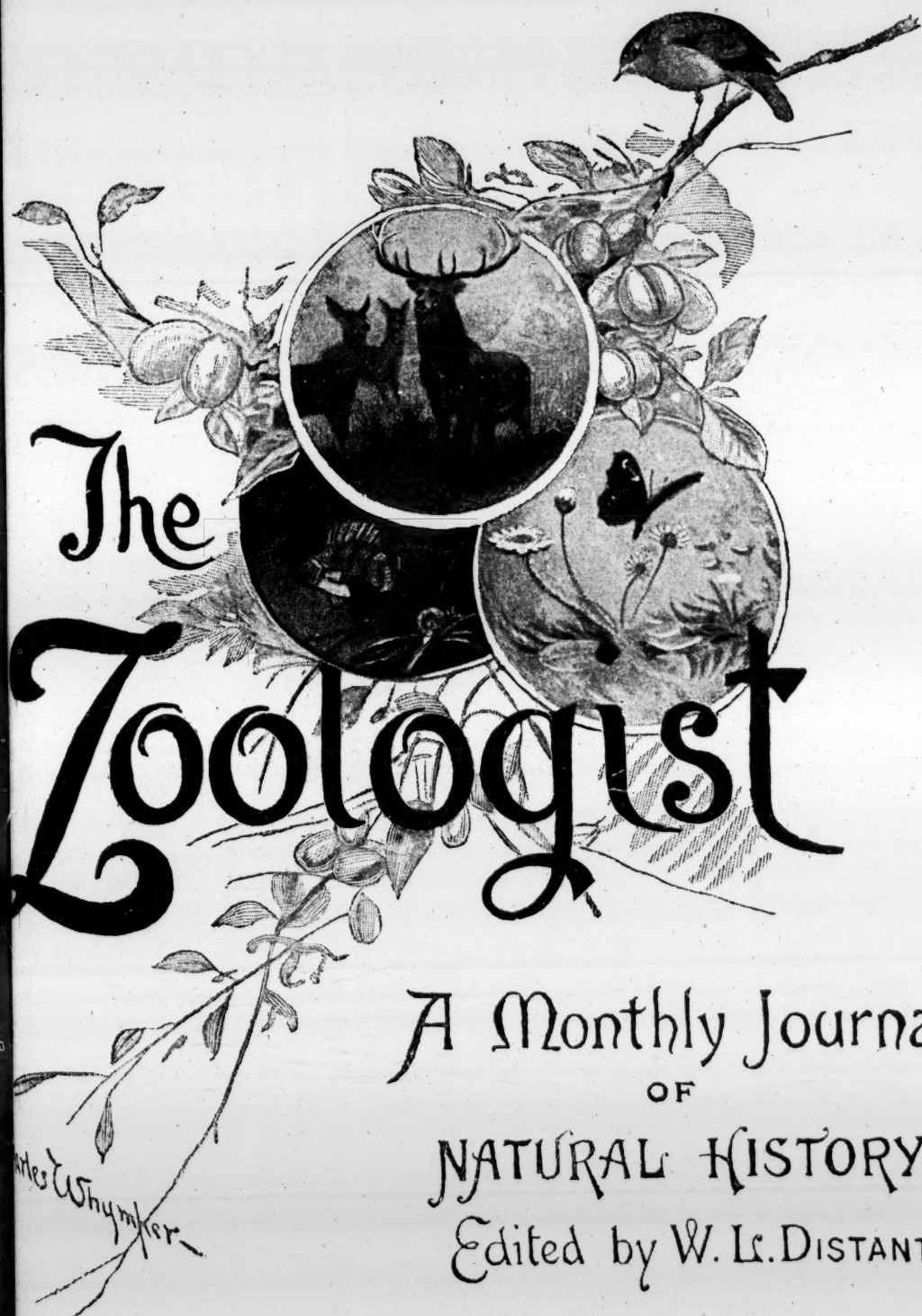
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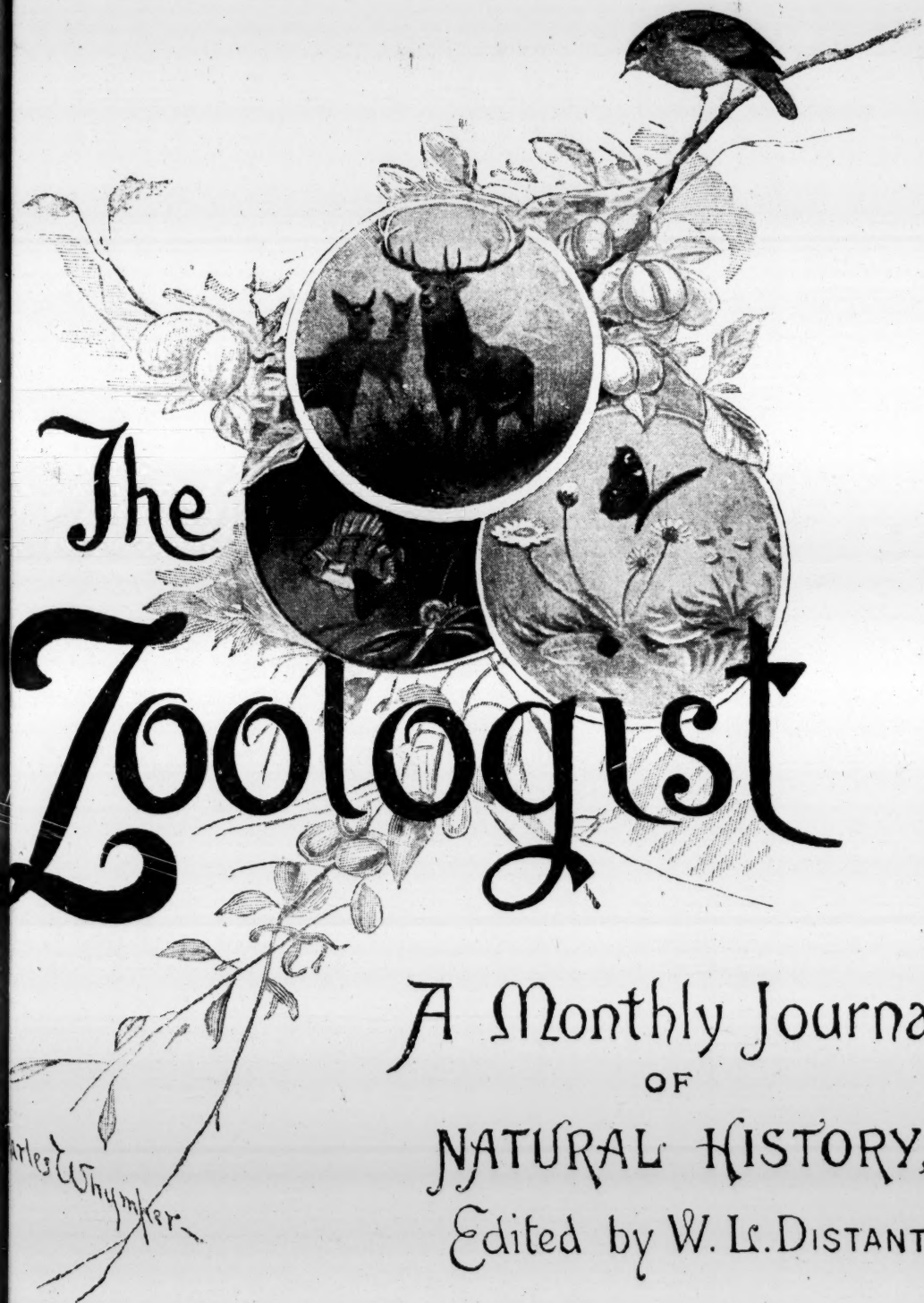
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